

Model: 50RZG

KOHLER POWER SYSTEMS

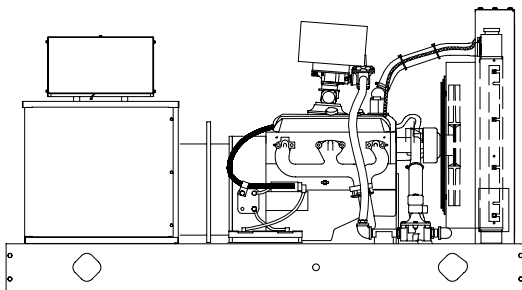
110-600 V

Gas

ISO 9001
KOHLER
GENERATORS
 INTERNATIONALLY REGISTERED

Ratings Range

		60 Hz	50 Hz
Standby:	kW	49-55	40-50
	kVA	49-69	40-56
Prime:	kW	45-50	35-45
	kVA	45-63	38-53



Standard Features

- Kohler Co. provides one-source responsibility for the generating system and accessories.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- The generator set provides one-step load acceptance.
- A one-year limited warranty covers all systems and components. Two-, five-, and ten-year extended warranties are also available.
- Generator features:
 - Kohler's unique Fast-Response™ excitation system delivers the fastest voltage response in the industry.
 - The brushless, rotating-field generator has broadrange reconnectability.
 - Kohler's permanent magnet-excited generator (PMG) provides superior short-circuit capability.
- Other features:
 - A rugged industrial gas engine delivers rated power at 1800 rpm (60 Hz) and 1500 rpm (50 Hz).
 - Controllers are available for all applications. See controller features inside.
 - The electronic, isochronous governor incorporates an integrated drive-by-wire throttle body actuator delivering precise frequency regulation.

Generator Ratings

Generator	Voltage	PH	Hz	Natural Gas				LP Gas			
				130°C Rise Standby Rating		105°C Rise Prime Rating		130°C Rise Standby Rating		105°C Rise Prime Rating	
				kW/kVA	Amps	kW/kVA	Amps	kW/kVA	Amps	kW/kVA	Amps
4P8	120/208	3	60	55/69	191	50/63	173	55/69	191	50/63	173
	127/220	3	60	55/69	180	50/63	164	55/69	180	50/63	164
	120/240	3	60	55/69	165	50/63	150	55/69	165	50/63	150
	120/240	1	60	49/49	204	45/45	188	49/49	204	45/45	188
	139/240	3	60	55/69	165	50/63	150	55/69	165	50/63	150
	220/380	3	60	55/69	104	50/63	95	55/69	104	50/63	95
	277/480	3	60	55/69	83	50/63	75	55/69	83	50/63	75
	347/600	3	60	50/63	60	45/56	54	50/63	60	45/56	54
	110/190	3	50	42/53	161	39/49	149	42/53	161	39/49	149
	115/200	3	50	41/51	147	37/46	133	41/51	147	37/46	133
	120/208	3	50	40/50	139	35/44	122	40/50	139	35/44	122
	110/220	3	50	45/56	147	42/53	139	45/56	147	42/53	139
	110/220	1	50	40/40	182	38/38	173	40/40	182	38/38	173
	220/380	3	50	42/53	81	39/49	74	42/53	81	39/49	74
230/400	3	50	41/51	74	37/46	66	41/51	74	37/46	66	
240/416	3	50	40/50	69	35/44	61	40/50	69	35/44	61	
4Q10	120/240	1	60	55/55	229	50/50	208	55/55	229	50/50	208
	110/220	1	50	49/49	223	45/45	205	50/50	227	45/45	205

RATINGS: All three-phase units are rated at 0.8 power factor. All single-phase units are rated at 1.0 power factor. **Standby Ratings:** Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Ratings are in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271. **Prime Power Ratings:** Prime power ratings apply to installations where utility power is unavailable or unreliable. At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528/1, overload power in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271. For limited running time and base load ratings, consult the factory. Obtain the technical information bulletin (TIB-101) on ratings guidelines for the complete ratings definitions. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. **GENERAL GUIDELINES FOR DERATION:** *Altitude:* Derate 1.3% per 100 m (328 ft.) elevation above 200 m (656 ft.). *Temperature:* Derate 1.8% per 10°C (18°F) temperature above 25°C (77°F).

Alternator Specifications

Specifications	Generator
Manufacturer	Kohler
Type	4-Pole, Rotating Field
Exciter type	Brushless Permanent-Magnet
Leads: quantity, type	12, Reconnectable
Voltage regulator	Solid State, Volts/Hz
Insulation:	NEMA MG1-1.66
Material	Class H
Temperature rise	130°C, Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Voltage regulation, no-load to full-load	±2%
Unbalanced load capability	100% of Rated Standby Current
One-step load acceptance	100% of Rating
Peak motor starting kVA:	(35% dip for voltages below)
480 V, 380 V 4P8 (12-lead)	210 (60Hz), 145 (50Hz)
240 V, 220 V 4Q10 (4-lead)	— (60Hz), — (50Hz)

- Complies with NEMA, IEEE, and ANSI standards for temperature rise.
- Complies with the requirements of ISO 8528-5 for transient performance.
- Sustains short-circuit current of up to 300% of the rated current for up to 10 seconds.
- Sustains short-circuit current enabling downstream circuit breakers to trip without collapsing the generator field.
- Self-ventilation, dripproof construction.
- Vacuum-impregnated windings with fungus-resistant epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.
- Solid-state, volts-per-hertz voltage regulator with ±2% no-load to full-load regulation.
- Fast-Response™ brushless alternator with brushless exciter for excellent load response.

Application Data

Engine

Engine Specifications	60 Hz	50 Hz
Manufacturer	General Motors	
Engine: model, type	Industrial Powertrain 5.7 L, 4-Cycle Natural Aspiration	
Cylinder arrangement	V-8	
Displacement, L (cu. in.)	5.7 (350)	
Bore and stroke, mm (in.)	101.6 x 88.4 (4.00 x 3.48)	
Compression ratio	9.1:1	
Piston speed, m/sec. (ft./min.)	5.30 (1044)	4.42 (870)
Main bearings: quantity, type	5, M400 Copper Lead	
Rated rpm	1800	1500
Max. power at rated rpm, kW (HP)	78.3 (105)	65.6 (88)
Engine power at standby rating, kW (HP)	66.4 (89)	54.5 (73)
Cylinder head material	Cast Iron	
Piston type and material	High Silicon Aluminum	
Crankshaft material	Nodular Iron	
Valve (exhaust) material	Forged Steel	
Governor: type, make/model	Electronic, Barber-Colman	
Frequency regulation, no load to full load	Isochronous	
Frequency regulation, steady state	±0.5%	
Air cleaner type, all models	Dry	

Exhaust

Exhaust System	60 Hz	50 Hz
Exhaust flow at rated kW, m ³ /min. (cfm)	15.6 (550)	12.2 (430)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	593 (1100)	
Maximum allowable back pressure, kPa (in. Hg)	10.2 (3.0)	
Exhaust outlet size at engine hookup, mm (in.)	76 (3.0) OD	

Engine Electrical

Fuel System	60 Hz	50 Hz
Ignition system	Electronic, Distributor	
Battery charging alternator:		
Ground (negative/positive)	Negative	
Volts (DC)	12	
Ampere rating	70	
Starter motor rated voltage (DC)	12	
Battery, recommended cold cranking amps (CCA):		
Qty., rating for -18°C (0°F)	1, 630	
Battery voltage (DC)	12	

Fuel

Fuel System	60 Hz	50 Hz
	LP Gas or Natural Gas	
Fuel type	Vapor	
Fuel supply line inlet	1 NPTF	
Natural gas/LPG fuel supply pressure, in. H ₂ O (oz./in. ² .)	7-11 (4-6)	

Lubrication

Lubricating System	60 Hz	50 Hz
Type	Full Pressure	
Oil pan capacity, L (qt.)	4.7 (5.0)	
Oil pan capacity with filter, L (qt.)	6.2 (6.5)	
Oil filter: quantity, type	1, Cartridge	

Application Data

Cooling (Standard Radiator)

Cooling System	60 Hz	50 Hz
Ambient temperature, °C (°F)	50 (122)	
Engine jacket water capacity, L (gal.)	6.8 (1.8)	
Radiator system capacity, including engine, L (gal.)	24.6 (6.5)	
Engine jacket water flow, Lpm (gpm)	117.3 (31.0)	98.4 (26.0)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	51.5 (2930)	42.9 (2440)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	533.4 (21)	
Fan, kWm (HP)	4.5 (6.0)	2.6 (3.5)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ O)	0.125 (0.5)	

Remote Radiator System*	60 Hz	50 Hz
Exhaust manifold type	Dry	
Connection sizes:		
Water inlet, mm (in.)	44.45 (1.75) ID Hose	
Water outlet, mm (in.)	38.10 (1.50) ID Hose	
Static head allowable above engine, kPa (ft. H ₂ O)	4.32 (17.0)	

* Contact your local distributor for cooling system options and specifications based on your specific requirements.

City Water Cooling (CWC) System	60 Hz	50 Hz
Exhaust manifold type	Dry or Water-Cooled	
System capacity, L (gal.)	—	
City water consumption at 10°C (50°F), Lpm (gpm)	—	
Connection sizes:		
Water inlet, mm (in.)	—	
Water outlet, mm (in.)	—	

Operation Requirements

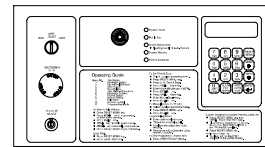
Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m ³ /min. (scfm)†	238 (8400)	193 (6800)
Cooling air required for generator set when equipped with CWC or remote radiator, based on 14°C (25°F) rise and ambient temperature of 29°C (85°F), m ³ /min. (cfm)	135.9 (4800)	110.4 (3900)
Combustion air, m ³ /min. (cfm)	5.0 (175)	4.0 (140)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	29.5 (1680)	23.6 (1340)
Generator, kW (Btu/min.)	7.6 (430)	6.5 (370)

† Air density = 1.20 kg/m³ (0.075 lbm/ft³)

Fuel Consumption‡	60 Hz	50 Hz
Natural Gas, m³/hr. (cfh) at % load		
Standby		
100%	21.1 (744)	17.0 (600)
75%	17.9 (631)	14.3 (505)
50%	13.7 (483)	10.9 (384)
25%	9.4 (333)	7.4 (262)
Natural Gas, m³/hr. (cfh) at % load		
Prime		
100%	19.8 (699)	15.9 (562)
75%	16.6 (587)	13.3 (469)
50%	12.8 (453)	10.2 (360)
25%	9.1 (320)	7.1 (252)
LP Gas, m³/hr. (cfh) at % load		
Standby		
100%	8.4 (295)	7.2 (254)
75%	6.5 (230)	5.7 (202)
50%	5.0 (178)	4.3 (153)
25%	3.7 (129)	3.0 (105)
LP Gas, m³/hr. (cfh) at % load		
Prime		
100%	7.6 (269)	6.6 (233)
75%	6.1 (214)	5.3 (187)
50%	4.8 (168)	4.0 (143)
25%	3.5 (124)	2.9 (101)

‡ Fuel consumption is based on 1015 Btu/standard cu. ft. natural gas.

Controllers



Available Controllers

Decision-Maker™ 340 Controller

Audio/visual annunciation with NFPA 110 Level 1 capability. Programmable microprocessor logic and digital display features. 12- or 24-volt engine electrical system capability. Remote start, prime power, remote annunciation, and remote communication options.

Decision-Maker™ 3+, 16-Light Controller

Audio/visual annunciation with NFPA 110 Level 1 capability. Microprocessor logic, AC meters, and engine gauge features. 12- or 24-volt engine electrical system capability. Remote start, prime power, and remote annunciation options.

Decision-Maker™ 1 Controller

Single-light annunciation and basic controls with NFPA capability. Relay logic features included with three controller options: standard, standard with engine gauges, and expanded with AC meters and engine gauges. 12-volt engine electrical system capability only. Remote or automatic start options.

NOTE: See the respective controller spec sheet for additional controller features and accessories.

Standard Features and Accessories

Additional Standard Features

- Battery Rack and Cables
- Electronic, Isochronous Governor
- Integral Vibration Isolation
- Oil Drain Extension
- Operation and Installation Literature
- Pilot-Excited, Permanent-Magnet Generator (PMG)

Accessories

Enclosed Unit

- Weather Housing (includes critical silencer, mounting, tailpipe, and skid end caps)

Open Unit

- Exhaust Silencer, Critical
- Flexible Exhaust Connector, Stainless Steel

Cooling System

- Block Heater
- City Water Cooling
- Radiator Duct Flange
- Remote Radiator Cooling

Fuel System

- Automatic Changeover (natural gas to LP gas)
- Flexible Fuel Lines
- Gas Strainer
- LP Gas Liquid Withdrawal
- Manual Valve and Gas Solenoid Bypass
- Secondary Gas Solenoid Valve

Electrical System

- Battery
- Battery Charger, Equalize/Float Type
- Battery Heater

Engine and Generator

- Air Cleaner Restrictor Indicator
- Bus Bar Kits
- CSA Certification
- Generator Strip Heater
- Line Circuit Breaker (NEMA1 enclosure)
- Line Circuit Breaker with Shunt Trip (NEMA1 enclosure)
- Optional Generators
- Rated Power Factor Testing
- Rodent Guards
- Safeguard Breaker
- Skid End Caps
- Voltage Regulation, 1%
- Voltage Regulator Sensing, Three-Phase

Literature and Maintenance

- General Maintenance Literature Kit
- Maintenance Kit (includes standard air, oil, and fuel filters)
- NFPA 110 Literature
- Overhaul Literature Kit
- Production Literature Kit

Controller (Decision-Maker™ 340 and Decision-Maker™ 3+)

- Common Failure Relay Kit
- Communication Products and PC Software (Decision-Maker™ 340 controller only)
- Customer Connection Kit
- Dry Contact Kit (isolated alarm)
- Engine Prealarm Sender Kit
- Local Emergency Stop Kit
- Prime Power Switch (Decision-Maker™ 340 controller only)
- Remote Annunciator Panel
- Remote Audio/Visual Alarm Panel
- Remote Emergency Stop Kit
- Remote Mounting Cables
- Run Relay Kit

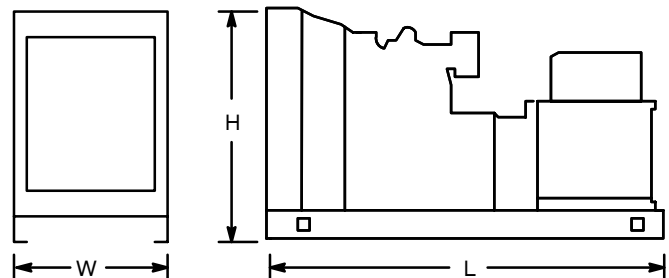
Miscellaneous Accessories

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WEIGHTS AND DIMENSIONS

Overall Size, L x W x H, mm (in.): 2200 x 1039 x 1201
 (86.6 x 40.9 x 47.3)

Weight (Radiator Model), wet, kg (lb.): 712 (1570)



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

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